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Values, migration, and environment

An essay on driving forces behind human decisions and their consequences

Walter Leimgruber

Introduction

Ahead of the Bonn summit, held in July 2001 and intending to save the Kyoto Protocol on climate change, expectations had been high that the problem of increasing global warming could be solved by a general decrease of CO_2 and other emissions of greenhouse gases to a level below that of 1990, and maybe even further. However, the Bonn summit succeeded only to a minor extent. Once more, little more than lip service has been paid to the warnings of the scientific community. The compromise which has been reached after tough and tiring negotiations is the absolute minimum of what has to be undertaken to prevent global warming from going on as before. Even so, there is no guarantee that the ecosystem will not capsize and put an end to humanity. Arrogance and narrow-mindedness continue to dominate human decisions.

The outcomes of the Bonn summit and of the subsequent conference at Marrakech in November 2001 illustrate the everlasting political dilemma: to find the right balance between what is urgently needed and what politicians are prepared to concede. It also demonstrates that the ecosystem is still perceived as a bottomless reservoir from which we can scoop an endless quantity of resources, and an equally bottomless sink into which we can dip all our waste – naturally everything at zero cost.

This observation marks the point of departure of this essay: the driving forces behind environmental change and environmentally induced mass migration lie with human decisions and actions. Based on the subjective perceptions of the reality, they reflect the worldview and the underlying value systems of a given society. Solutions towards the mitigation of human-induced global warming effects and of environmentally induced migration will therefore have to root in a change in attitude of the human race. Everybody is concerned by such a change; politicians alone cannot be made responsible for the near-failure in Bonn and Marrakech. As representatives of their countries and populations, however, they bear an enhanced share of responsibility: they ought to take the lead in all questions and show new ways ahead. *Gouverner c'est prévoir*.

As a consequence of the Bonn agreement, the industrialized countries will have to come to grips with the problem of greenhouse gas emissions, both technically and morally: "The Protocol will enter into force and become legally binding after it has been ratified by at least 55 parties to the Convention, including industrialized countries representing at least 55% of the total 1990 carbon dioxide emissions from this group. So far, 36 countries have ratified, including one

industrialized country (Romania)." (Press release 2001). If this condition can be fulfilled, we may speak of a relative success. The chance for the survival of humanity continues to exist, and maybe large-scale migration for the reason of global warming need not happen.

This paper is characterised by a moral undertone and is very critical towards our current Western way of thinking. It is therefore not a scientific paper in the narrow sense of the word. In particular, it is not concerned with a discussion of the predictability of environmental migrations or of potential technical measures. Döös (1997) has discussed the former and shown its limits – migrations are to a considerable extent the result of personal decisions, even if external causes must not be ignored. As to the latter, humanity has equipped itself with a formidable set of technological instruments to solve almost every problem, but we have learnt in the course of the 20th century that most technical solutions carry within themselves new predicaments. We cannot foresee the consequences of the application of a particular technology, and we usually tend to narrow down the choice of possible solutions to a problem to a single one that is considered the only realistic one. We think in a 'monocultural' way and leave no room for alternatives – the Indian ecologist Vandana Shiva (1993, p. 5) calls this the "TINA syndrome" ('There is no alternative'). A change in attitude is more pressing than new techniques, and it is precisely at this point where the value system has to be discussed.

Values, world views and thinking

All processes influenced by Man, diverse as they may be, are ultimately driven by a value system. The term of values has itself been subject to widespread discussions, since it is used in a variety of disciplines. Habitually, the word first evokes its economic context of use-value, a perspective that has influenced our thinking very deeply. The ethical and sociocultural aspects (which can be called 'non-use values'; cf. Edwards & Abivardi 1998) come second only, but it is from this perspective that the present discussion will be conducted.

Values can be called general principles legitimating the rules of behaviour set by norms (Chazel 1988, p. 125). They lie behind our varying interests and guide our knowledge systems, social behaviour, consumption, etc. The bearers of values are the individuals, but every individual is part of a society to which it transfers his/her values, which, in turn, will become a property of the respective society. It is important, however, to stress their subjective character, as certain individuals with their personality are able to transmit or even impose their particular value system on a group or even an entire society. In such cases, the desire of an individual actor is very important relative to the value he/she defends (cf. Livet 2001).

Values exist as a duality or couple, i.e. they are characterized by fixed terms. From their contents, we can imagine them as two extremes lying at either end of a continuum. Becker (1959, quoted in Hillmann 1989, p. 141 ff.) uses the two terms of 'sacred' and 'secular' to de-

scribe comprehensive value systems (Fig. 1). These two terms must not be interpreted as religious notions in the sense of a particular institutionalised religion, but rather as general spiritual terms, referring to specific modes of acting. An individual or a society dominated by sacred values will experience problems when dealing with innovations, as it tends towards the conservation of inherited ways of life, whereas a secular society embraces changes and considers them indispensable elements of social progress.

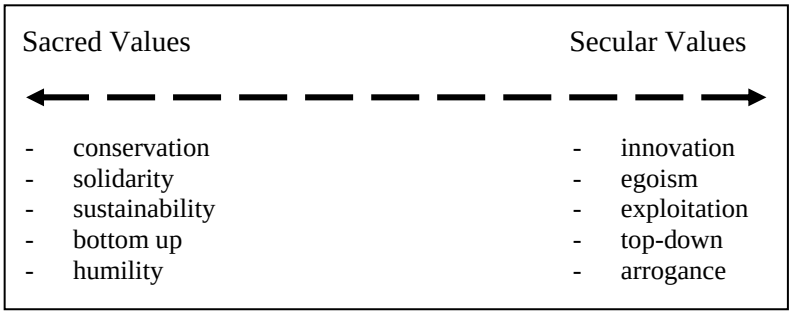

Fig. 1 The value continuum

For the same phenomenon, other terms have been used. Cunha (1988), for example, prefers to speak of the existentialist and the productivist paradigm, whereas Fernandes & Carvalho Tomás (2001) use the couple 'ecocentrism' and 'technocentrism'. From another philosophical perspective, secular values correspond to the male or *yang* view, sacred values, for their part, to the female or *yin* perspective. Whatever terminology we apply, they two extremes are complementary and represent extreme positions that are never fully attained; yet they have to be taken into consideration. Neither is good or bad, but imbalance in either direction can be detrimental: too much reliance on sacred values leads to stiffness, too much confidence in secular values results in restlessness and uncertainty.

Throughout history, from the pre-Neolithic predator to the Neolithic cultivator and past the middle Ages, the predominant values have always oscillated between the two extremes (Fig. 2). Every innovation (the plough, bow and arrow, the wheel etc.) meant a shift towards secular values, but the impact of such early innovations on the ecosystem and on societies was negligible, given the limited number of people who applied them in daily life. In the Age of Enlightenment (since the 17th century), the philosophical basis for the natural sciences were laid, and Man began to dominate nature, a process that conducted him towards the Industrial Revolution with increasing negative impacts on the environment. Domination was reinforced by the technological breakthrough of the 20th century and led to reckless exploitation. The pendulum swung right towards the secular values that came to govern human actions. The ecosystem was thus viewed

as a domain at the exclusive service of mankind, as possessing a simple use value: ecocentrism was replaced by technocentrism (Fernandes & Carvalho Tomás, 2001).

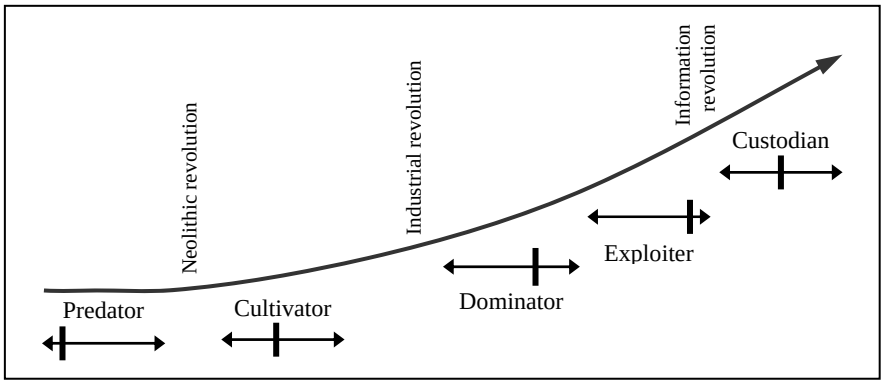

Fig. 2 Changing value systems in the relations between humans and the ecosystem
A vertical line marks the dominating values: sacred values to the left, secular values to the right

While it is no use criticizing the Enlightenment revolution ex post, it must nevertheless be pointed out that its way of thinking has radically changed human attitudes. Appropriation and exploitation became the prevailing traits in the European worldview. Individual actions were put over collective ones; reason triumphed over traditional authority, and through "the disengagement of nature from a supernatural worldview" (Shea & Huff 1995, quoted in Withers & Livingstone 1999, p. 5), the position of Man within the Creation was reversed. The biblical saying "replenish the earth and subdue it" (Genesis 1/28) was taken too literally: to subdue was equalled to exploitation that usually results in destruction. While John Locke advocated that subduing nature is a means to avoid scarcity (Van Dieren 1995, p. 19), he did not deliver a passport to destruction: to subdue does not exclude management.

Humans replaced supernatural elements in their worldview by rational ones. This process has been described by Lea (1994) who pointed out that since the Middle Ages, God was moved from His position in the Creation and gradually replaced by Man and, ultimately, by the new gods Science and Technology, who may eventually take control over the human race (Fig. 3). Gould (1999, p. 406) confirms this point when he says "We are in a European world where the God giving meaning is being displaced from the centre and being replaced by the human as the measure of all things, positing increasingly the way the world *will* be, positing even the god being displaced." (Emphasis in the original). In other words, humanity plays god, and the 'old God' is given His (or Her) place just somewhere (or even nowhere).

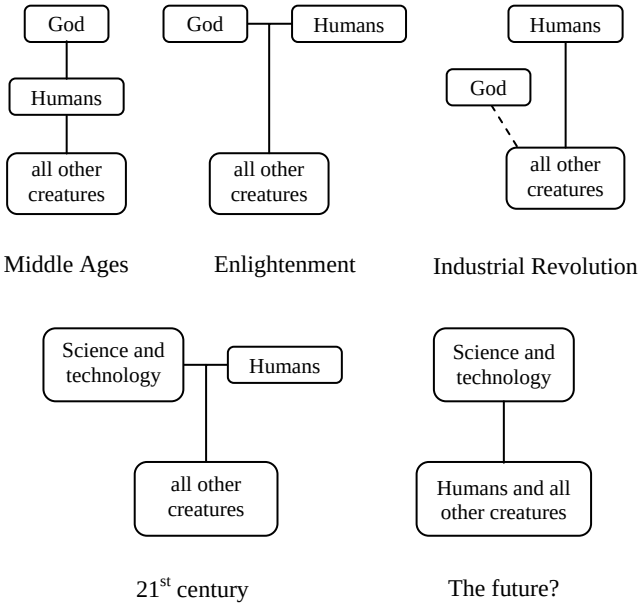

Fig. 3 Man – God relationship (after Leimgruber 2000, p. 12, modified)

Values influence our thinking, an activity that usually precedes decisions and actions. In the second half of the 20th century, we have acquired the tool of general systems theory that enables us to understand and foresee complicated processes, to avoid a dead end, and to beware of negative outcomes. Modern simulation techniques would be unthinkable without this instrument, which owes its potential to the human brain, by far the most elaborate of all living creatures. Its complexity with six layers (ten if we count the subdivision of layers 4 to 6) and two halves distinguishes us from the animal realm (Aubier 1992, p. 200) and is the basis for complicated reflections. Bourguignon & Koupernik (2001) emphasise this point: *"Le cerveau humain, du fait de son extraordinaire richesse, est le seul cerveau de la série animale capable de concilier la répétition et le changement."* (Thanks to its extraordinary richness, the human brain is the only one in the animal realm, which is capable of combining repetition and change). This particularity enables us to think in different ways (Fig. 4): *laterally* by successively opening up new lines of thought, *logically* by proceeding along a strict 'yes – no' line, or *naturally* by allowing our thoughts to flow freely (Wood 1987, p. 290 ff.) However, it is important to think *'organically'*, i.e. see the integration or mutual dependencies of individual lines of thought to understand systemic processes.

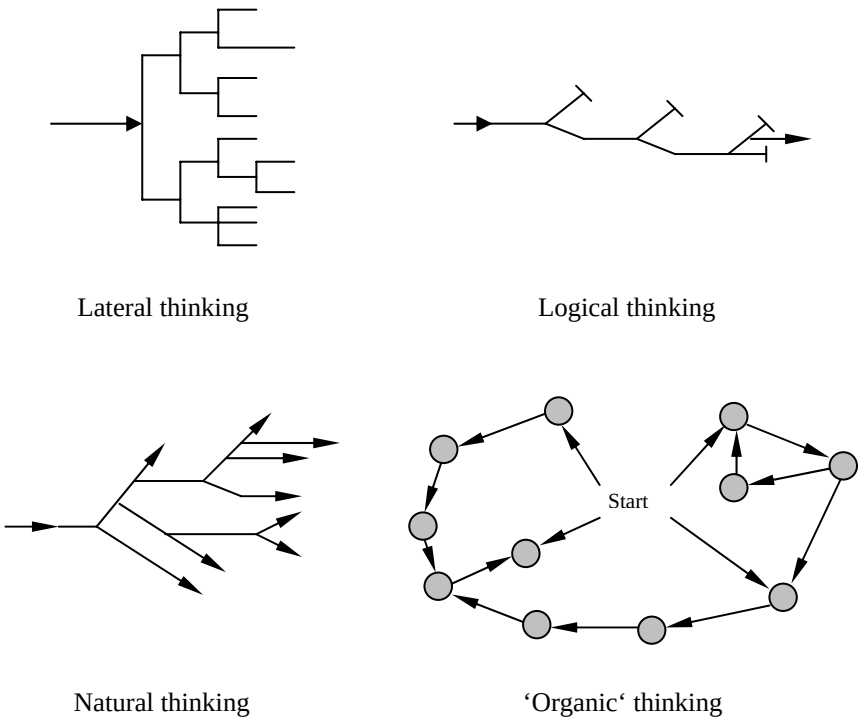

Fig. 4 Modes of thinking (after Wood 1987, p. 291)

It is a commonplace that we do not know how and what other people think. We should, however, respect the different ways of thinking. All our actions originate in thoughts, but the way we think is to a substantial amount influenced by the society and the culture we live in and the common value system. Every culture faces specific problems of survival, and the response to a particular natural event may vary from one group to another – even from one individual to another. This diversity of thinking is mirrored by the diversity of knowledge systems that are adapted to given social circumstances, and which can be applied to local and regional food support systems as well as to the management of local and regional ecosystems. This diversity, however, has been replaced by 'monocultural' thinking (Shiva 1993) which has spread over the globe as a consequence of European colonisation. This point must be stressed because during the era of colonization, European countries not only conquered territories overseas with populations to dominate and resources to exploit, they also diffused their own value systems and considered other peoples' cultures as inferior. This is what Gould means when he speaks of the 'European world' (1999, p. 406). One of the ideas spread was that of use value attributed to a particular resource, a unilateral use from the perspective of European industry. This monoculture of the mind is exemplified by the conviction that one given plant serves one single purpose only (a tree for timber or paper wood; Shiva 1993, p. 13) or by the erroneous assumption that Eucalyptus "is faster growing than all indigenous alternatives" (ibid., p. 31). Monocultural thinking wants to make a complicated world simple, tailored exclusively to specific ('western')

human needs. A tree, however, not only consists of wood but has also leaves which can serve for fodder and give shade to a plantation, and it holds an important position in a local ecosystem, adding to its biodiversity (Fig. 5). It combines use values and non-use values.

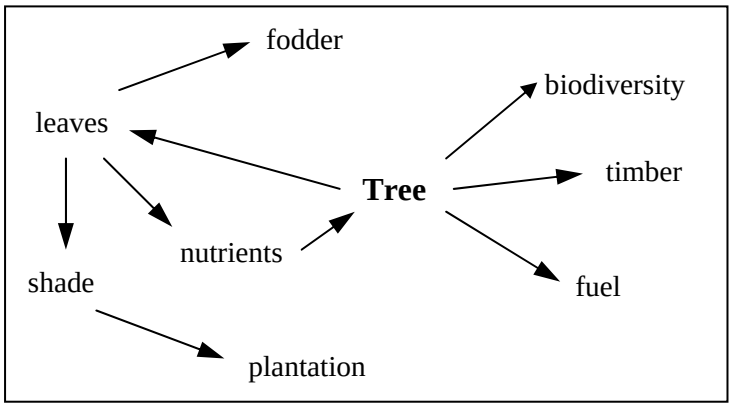

Fig. 5 Diversity in thinking

The dynamic nature of the ecosystem

Environmental change is a normal phenomenon because life is by its very nature dynamic. A static situation is the exception, and its duration is limited. When we study structures, we observe a momentary state in a steady process. As humans, however, we tend to feel uneasy about constant changes. We prefer a stable situation within which we can organize our lives peacefully without having to adapt to new circumstances all the time. Every law and regulation testifies to this desire for stability: we want to be sure what happens in a given moment under certain circumstances, we want to control the situation at any moment. Unexpected events, however, do occur and force us to modify our rules according to the new conditions

The natural environment is an ever-changing system, following its own rule of self-sustainability – this is a commonplace. Humans (who have been transforming their living space in an intentional way for more than ten thousand years) have always tried to construct stable social conditions for themselves – this is another commonplace. But since the 17th century, we have gradually forgotten the first commonplace and have attempted to adapt the environment to the second: mankind longed for a stable nature to permit a stable (i.e. safe) way of human life. Nature had to be controlled; it had to obey human wishes and needs. To do so, technical means were developed to influence, check or repair certain types of changes (e.g. flood control, slopes stabilisation, afforestation, earthquake proof constructions etc.) in order to protect settlements and transportation routes. Inconspicupous at first, they increasingly resulted in artificial landscapes and disturbed the functioning of the ecosystem. Currently we assist expensive processes of landscape rehabilitation: watercourses are given natural banks,and hedges are replanted.

Large-scale afforestation programs in many countries put the trees back that have been felled but do not re-create the original forest ecosystems with their dynamic equilibria. "The result is often a simpler ecosystem in which genetic resources are only partially preserved." (Attfield 1999, p. 84). The technical measures primarily fight the symptoms without going to the roots of the problem.

The processes changing our environment broadly fall into three categories:

1. Natural processes beyond human control (earthquakes, volcanic eruptions, long-term climate change, hurricanes),
2. Natural processes as unintended consequences of human actions (soil erosion following forest clearing, desertification due to overgrazing, climate change due to the emission of greenhouse gases),
3. Intentional transformations (flood control, dams, afforestation).

We accept and promote man-made transformations of the environment (the *third* category) if they bring or enhance security, comfort, and welfare. Any failure can be repaired by technical improvements. We have to live with events of the *first* category because there is no way of avoiding them. It is possible to predict certain events to some degree – the locatios of the seismic zones and of volcanoes on earth are known, and sophisticated models permit us to forecast the weather, but despite the advanced state of science, we shall never arrive at certainty. The true violence of the hurricane Lothar, for example, which struck parts of Europe on Boxing Day 1999, could not be foreseen in time.

The real difficulty lies with the *second* category because it is precisely here that humans can intervene and change themselves, and it is from this category that emerge the multiple threats to the environment, which may induce people to leave their homes. Resource use and research in the natural sciences look first and foremost towards the wishes and (real or imaginary) needs of society. Satisfying demand is a practical task, based on research and resource use. While scientific results, application, and commercial success may turn up in a relatively short time, the unintended consequences of technical measures will appear much later. DDT and the FCHC, for example, have been applied successfully for many decades until their negative impacts became visible.

The uncertainty about the dynamics of the ecosystem calls for the application of the precautionary principle, particularly in decisions and actions on technology influencing directly or indirectly the natural environment. This includes, e.g., the careful selection of settlement sites or transportation routes, taking into account not only present-day risk evaluations but also past events and local knowledge. Information is an important instrument to publicize precautionary measures, but we have to bear in mind that the public has not the same perception of a potential event as scientists. Our western society has gradually become accustomed to the possibilities,

quality and reliability of modern technology; we expect things to function in a certain way and can hardly imagine another scenario than the one we have in our minds. Research on the perception of flood hazard in the US as early as the 1950ies have shown that "increased spending on flood prevention … was actually paralleled by greater losses from flood damage, possibly because people modify their attitude to flood plain occupancy in the light of changing beliefs as to the power of available technology." (Walmsley & Lewis 1984, p. 109). Too much confidence in technology may be as wrong as excessive scepticism about the efficiency of technical flood prevention methods. The inhabitants of the Beijiang region in rural northern Guangdong province in China believe that floods are unavoidable and prefer to adapt themselves to the risk (Wongh & Zhao 2001). Only one in five rates flood prevention structures useful (ibid. p.197). In many instances, people flee from their home region struck by a natural catastrophe, but want to return home as quickly as possible. The attachment to their homes as well as to symbolic places (including cemeteries and tombs of ancestors) prevails over the fear of further events. This can be observed when earthquakes strike densely populated regions. In the Friuli region (northeast Italy), the population started to rebuild their houses after a first quake in May 1976; they were evacuated after the second earthquake in September of the same year, but the reconstruction was continued (Geipel 1989). In the case of the Kobe earthquake in 1995, it was obviously deemed impossible to relocate an entire city; the authorities promoted improved building technology in order to ensure a safe living space. – People also tend to forget past events, in particular if they lie several generations back. A severe flood hit the small town of Brig in Switzerland in 1993, but nobody had remembered that similar events had occurred in the centuries before, the last in 1912.

Applying a precautionary approach is a necessity for a society that has lost the intimate knowledge about the relations between human actions end the scope allowed by the ecosystem. All activities have significant impacts, and they should not be considered negligible unless proved to be so. The complex and highly dynamic ecosystem will never be perfectly understood. As a consequence, scientific advice to management is always affected by uncertainty. Management decision processes in turn have their own uncertainties, and in the end the impacts on the system are difficult to predict accurately. The consequences of management errors thus may take a long time to be corrected (FAO 2000, chapter 'Indicators of sustainable development and the precautionary approach in marine capture fisheries', section 'The precautionary approach'). What about political decisions?

Politicians find themselves inside a complex network of obligations and interests, and they do not necessarily practise precaution. They tend to think in terms of electoral periods, want to stay in power, and try to avoid unpopular measures even if they were necessary. They may accept that nature has its own ways but want to apply the principle of market liberalism to the re-

lationship Man – ecosystem. The reasoning is simple: if the cost for a specific good exceeds the price customers are prepared to pay, this good will no longer be demanded. This, however, would mean internalising environmental cost, something, which so far has hardly happened. In this way, nature could regulate itself according to the free-market rules. This, at least, is the simplistic view of the ardent defenders of unlimited human freedom. The idea of common responsibility remains outside their thinking.

Changing human perspectives

The human pressure on the ecosystem can be viewed from two angles, both based on the notion of 'needs' (Anderson 1996, p. 85 ff.), but following two diverging paths. First, the overall population growth calls for more food, water, and other goods to satisfy the basic needs of an increasing number of people. Countries with a heavy demographic pressure (countries in the 'South') already now have severe problems of supply, and the future looks bleak for many. Increased demand puts additional stress on the ecosystem and favours its degradation. This fact alone may suffice to propel mass migration. Critical meteorological conditions such as droughts (Richter 2000) will aggravate the problem. Secondly, the increase of affluence in the 'North' continues to provoke new desires for consumer goods. The economy is invited to provide a steady flow of (seemingly) new and better products. People in the North demand unlimited fulfilment of their wishes; otherwise they will run into what I should call the problem of 'social scarcity'[1] . Human creativity for material goods is under a constant challenge, new resources have to be opened up, and the 'one-way-society' generates superfluous waste[2].

It is a commonplace that this kind of exploitation will eventually overstretch the potential of the ecosystem, both as a provider of resources and as a sink for waste, and it will inevitably collapse at a certain moment in time. Its carrying capacity in the strict sense can only be tapped indefinitely if its limits are respected and its inertia or elasticity used sparingly (Fig. 6). The consumption of the ecosystem by human demand can be seen as passing through three stages, of which the third need not arrive, if adequate measures are being taken at the moment demand passes from stage I into stage II or at the latest when it is being satisfied by the elasticity of the system. The three stages are:

Stage I	Demand varies within the carrying capacity of the natural system
Stage II	Demand and/or way of satisfying it pass beyond the threshold of sustainability. The inertia of the system guarantees satisfaction for a limited period
Stage III	Satisfaction of demand is reduced due to declining performance or collapse of the natural system.

[1] Consumer goods are the mark of social prestige. To own more, better and the most up-to-date products is necessary to keep up with the neighbours. Social scarcity means the lack of these goods.

[2] Only a fraction of the resources used will eventually be transformed into a final product, and most of them will be thrown away immediately after their first use (von Weizsäcker et al. 1997, p. 19).

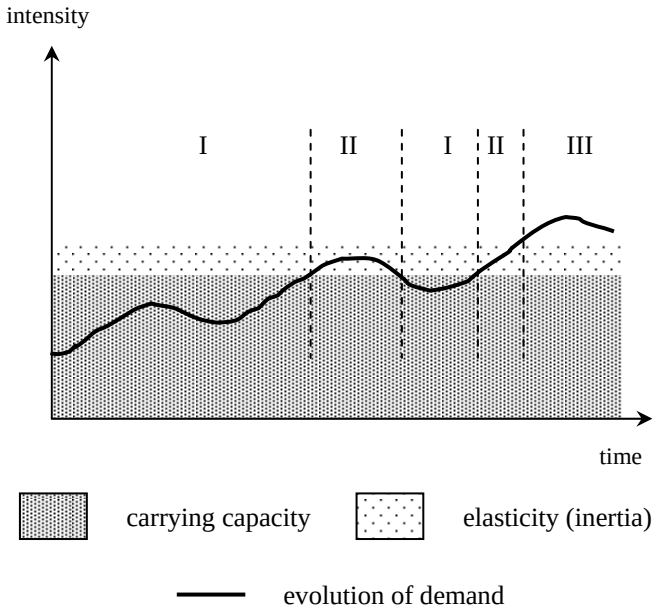

Fig. 6 Demand and the ecosystem
(Source: Hauser 1990, vol. I, p. 43)

The model is not deterministic as the drawing might suggest. If the growth of demand can be kept inside the carrying capacity, there will be no permanent degradation, and sustainability can be guaranteed (Attfield 1999, p. 104). Under the prevailing secular value system, this is not so easy, and Hauser reminds that "long-term survival of mankind is only possible within a dynamic equilibrium, and in a dynamic equilibrium, growth can only be tolerated during a short period." (1990, II, p. 584). His remark calls for zero growth – the nightmare of every shareholder and company executive who view growth[3] from a purely quantitative perspective.

Unfortunately for humans, the ecosystem is very complex, and our needs vary considerably over space and time. We do not know where precisely its threshold lies, and we tend to go beyond the limits – a point made more than a generation ago by Meadows et al. (1972) and confirmed twenty years later (Meadows et al. 1992). His ignorance in this matter prevents Man from applying the precautionary principle consistently and considering restrictions, for example. Enhanced resource efficiency could help to solve many problems. What has been possible to some extent with energy after the oil shock of the 1970s should be carried further into other fields.

The basic problem has been recognized, and numerous counter movements have sprung up long before the Rio summit sounded the alarm bell. Top-down initiatives combining interventions on ecological and development questions (by the Club of Rome, the Club of Lisbon, the South Commission etc.) go back into the 1960ies, but in the eyes of many, they seem to be of

little effect as they work too slowly. As a consequence, numerous bottom-up movements have emerged in many countries (Ekins 1992), initiating local actions in order to offer immediate relief and to draw the attention of the general public to social and ecological distress. Bottom-up movements demand solidarity and hard work, often without remuneration. Their existence demonstrates that a new way of thinking is making its way. It has been understood that "clean water and air, unpolluted soils, are not available 'freely' in nature once human beings have had a hand in economic development." (Redclift 1995, p. 12), but that a personal sacrifice is required. Such measures go beyond technology and are often taken without political support. They may receive help from NGOs within the scope given them by the political class.

Environmentally induced migration

At this point it does make sense to briefly discuss the problem of 'environmental migration'. This term itself is far from explicit and calls for clarification. Baechler noted a few years ago that the distinction between people who flee from natural disasters and those who migrate because of environmental degradation is fluctuating (1995, p. 74). It remains an open question if they prefer to migrate for good or if they see their movement as temporary, until a return is possible. Temporary migrations have been the rule rather than the exception in semi-arid regions where rainfall determined the agricultural potential, and in shifting cultivation regular displacements were part of the system. The duration of migration depends on the type of environmental change which drives people away: the permanent flooding of a valley due to the construction of a dam is different from a flood due to a specific meteorological situation and from climatic variations whose temporal aspects are difficult to asses.

It has been said above that environmental change is essentially the result of human decisions and actions. Northern (European) thinking has contributed to the deterioration of living conditions in the ecological, economic, and social domain all over the globe, and the industrialised countries have to assume their share of responsibility (Scheffran 1994, p. 23). These three domains are intimately connected: wars are fought over natural resources or over the dominance of an ideology, and they result in the destruction of the land and in poverty among the refugees from the war zones (e.g. Sudan, Vietnam; we could also recall the risks which persist to agriculture and forestry in Northern France due to unexploded shells from the heavy battles in 1916 during World War I; see Amat 1987, 1988); unsafe industrial plants threaten the populations living in their surrounding (Seveso, Bhopal), overexploitation leads to desertification (Goudie 1990, p. 48 f.; Döös 1997; Richter 2000, p. 13), monocultural farming results in soil degradation and soil erosion, unconsidered deforestation disrupts regional ecosystems and subsequently

[3] True growth occurs when the rise of the economic performance lies above population increase within a given period.

promotes soil erosion – the list could be continued. In all such cases, the degradation of the environment acts as a push-factor for the populations concerned. Emigration may be the only possible way for survival.

It is true that mass migrations have been caused by natural events beyond human control. Soil and climate variability – hence economic instability – were partly responsible for frequent nomadic incursions into China (Brauer, [p. 24] speaks of an "ecological discontinuity") which sometimes resulted in lengthy occupation periods, and in the 20th century, repeated migration waves occurred in the Sahel region in Western Africa (Richter 2000), although migration in that region has a long tradition (Hammer 1999, pp. 256 ff.). Following an earthquake, emigration may be temporary only (such as in the case of the Friul; Geipel 1989), but also floods or droughts do not necessarily drive people away for good. Even if emigration for environmental reasons is a decision based on an external factor, it will often be looked at as a constraint that will not last forever. The wish to return home after the end of the threat may be stronger than the perceived risk to survival.

The present-day long-range human modification of world climate, which can now be measured with some accuracy, however, may result in future migration flows that are likely to be irreversible. Coastal lands submerged by the rising sea level cannot be recovered unless one is prepared to construct coastal defences to protect the lands. The Dutch could afford to finance such massive constructions, Bangladesh, however, cannot. Once the ecological basis for survival is destroyed (i.e. the land is drowned or swept away, the soil is degraded or eroded), there is no way to return.

The relations between environmental and human factors have been described by Döös (1997, p.43). He puts great emphasis on the human factor, represented by population, society (with economics and politics), and minority conflicts. Behind them, however, lies the value system according to which a population evolves, organizes its economy and political system, and views minority groups. Civil war and international conflicts are also directly related to the three factors and the value system (Fig. 7).

The emphasis on values is justified by the role they play in our life. Our actions vary according to the values that guide us: exploitation or conservation, individual profit or common welfare, i.e. secular or sacred values. From the colonial epoch onwards, rationalist European thinking and secular values have been imposed on peoples of the South who, however, were not prepared to this and lacked the intellectual and material means to cope with the problems stemming from this new value system. The North has exploited the South (e.g. by promoting monocultural cash crops for the World market and repatriating the profits obtained); it is therefore at least partly responsible for the degradation of the environment and the mass movements occurring from time to time. Since the industrialised world has become aware of the ecological trap

into which the World is about to fall, it wants to dictate the South certain ways of behaviour to save our planet – a very cynical attitude which has little to do with a true concern about the future of the Earth but is rather a way to maintain its power over the South without manifesting the intention to do the same! Basically, however, it is not our task to tell other people what to do; we have contributed to the degradation of their environment without trying to understand their world view, now we shall give them a chance to solve the problems not according to our northern ideas but in combination with theirs: the diversity of thinking is offering alternatives (Shiva 1993; Zweifel 1995), not the technocratic northern dictates.

Environmentally induced migration may have several origins. It may root directly in natural changes in the environment, or it may be economically motivated based on unintended consequences of human interventions on the ecosystem. Depending on the intensity of impact and on the perceived duration of absence, a migration movement may be looked upon as a temporary or the final solution to the human distress, and the distance of migration will be related to this perception.

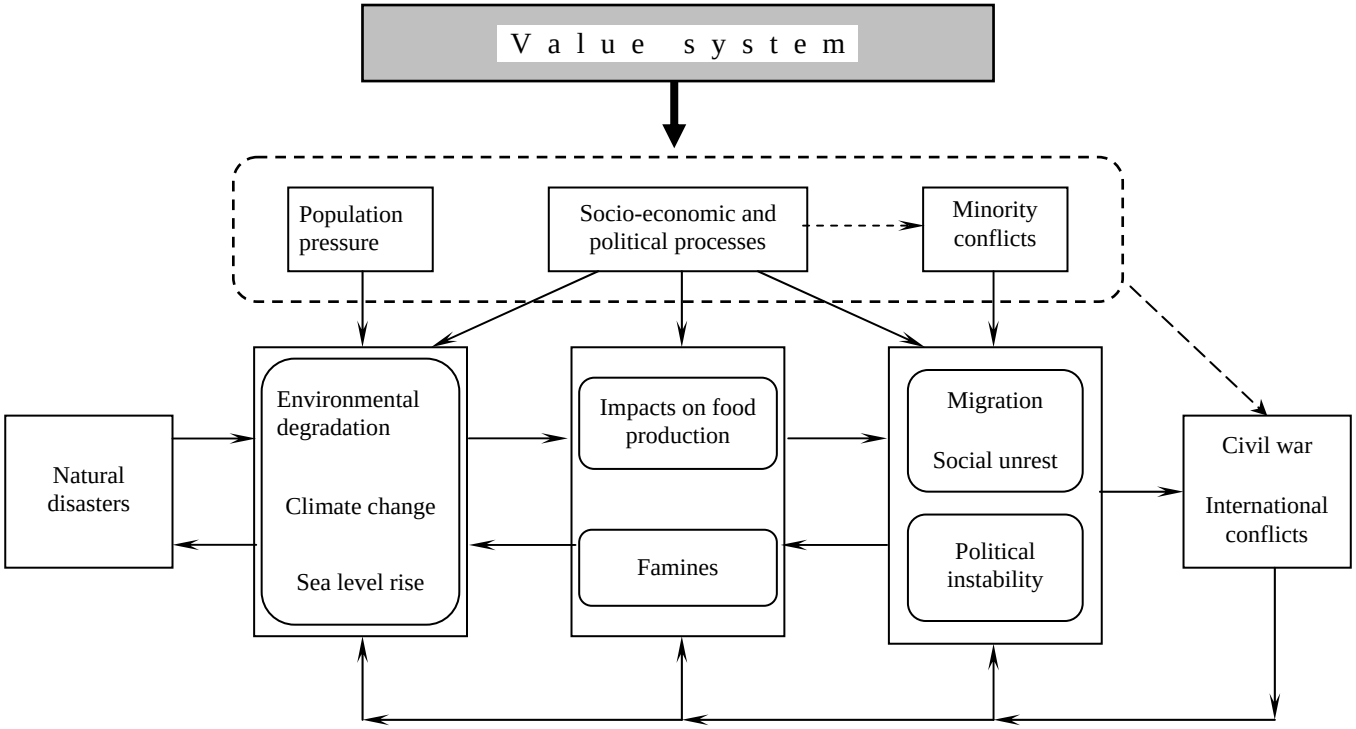

Fig. 7 Interconnections between factors influencing environmentally induced migration (modified after Döös 1997,p. 43)

Policy implications

International mass migration has many political consequences, and the North is gradually beginning to understand them. At present, no solutions to the expected flows have been found, and the laws have not yet been adapted to this new 'threat'. So far, migration has been dealt with from the perspective of the labour markets; laws and regulations sufficed to control the flows of immigrants.

Environmentally induced migration, however, is a new phenomenon, and we are ill prepared for it. The category of ‘ecological refugee’ does not exist in the political and legal vocabulary, nor does that of the ‘economic refugee’. Refugees are defined according to the UN Convention as people persecuted for ethnic, ideological or political reasons. A new reality has been emerging since the 1980ies, and we shall have to live with it despite all efforts of the countries of the North to prevent these two new groups from being included in the refugee definition. This means rejecting our responsibility for the ecological and economic causes of such mass movements.

Solutions have to be sought. Barring the borders of industrial countries is not the answer to the growing pressure on our boundaries. It makes the North even more attractive and results in clandestine immigration and trafficking with immeasurable consequences. Human tragedies are happening every day on the outer borders of the European Union, in particular in the Mediterranean, but also in other parts of the World. This mass movement, whether ecologically, politically or economically motivated, is the reaction on the exportation of Northern values and the refusal of the North to take the problems of the South seriously.

New approaches have to be evaluated. Preventing emigration instead of fighting off immigration requires rethinking Northern attitudes in general and towards the South in particular. In addition, the cooperation of the elites in the countries of origin must be secured. Investments must be profitable for the population and the country as a whole, not for the industrial countries and the ruling class alone. Large-scale democratisation is needed, i.e. a redistribution of wealth and social equity – a change of attitude. The pendulum has to swing back from an excessive emphasis on secular values towards the sacred side. There are signs that this is happening, but the process has still to increase in force. Consumers of the North develop solidarity with producers of the South, and the opposition to globalization (or, more precisely, global trade liberalism) is increasing (Hoad 2001). Most opponents – those who demonstrate peacefully and those who silently disagree – are motivated by genuine worries about the future of our planet, both in ecological and in social terms. Politics ought to take these protests seriously and, instead of repressing them, look at the positive core and take action accordingly. This, of course, might

prejudice the delicate links between political power and economic hegemony and endanger corporate interests. Courage would be required for such a forward looking policy.

Concluding remarks

What is to be done to remedy such a dramatic situation? I should like to launch two reflections that may point ways we shall have to go in the future. They are to some extent related.

1. In the film *'Après la tempête'* (After the storm), the French philosopher Dominique Aubier discusses, among other things, the trees felled by the hurricane 'Lothar' in December 1999 (Van Effenterre 2000). In a rather unconventional comment, she asserts that the storm had simply stopped the growth of the trees, and that after the passage of 'Lothar' new life will grow in the same forest. The trees are, according to her, not dead, they have simply been 'stopped' in full life *("Nous avons un stop, ce n'est pas la mort que nous avons là, c'est de l'arrêt. Ils sont tous stoppés en pleine vie comme s'ils avaient fait un pas de trop.").* From this statement we can infer that to halt one particular process can be the source of a new and better process. To prevent inventions from becoming commercialised (among other things, she refers to biotechnology) may be obvious to a philosopher who takes a wide look at the phenomena in life but not 'normal' to the inventor or the economic interests behind. However, certain politicians and company managers should learn from philosophers and widen their outlooks as well. The same applies to science and technology – it may be better to stop before a road becomes a way of no return. This sounds like heresy, but the current success of organic farming illustrates how a new way is overcoming the deadlock of conventional monocultural farming.
2. The World is an open ecosystem, functioning according to deterministic rules and receiving solar energy to keep it going. Open systems stand good chances of survival because of the constant energy input they receive. The global economy, on the other hand, is probabilistic and appears to function as a closed system. Its sole energy input is self-generated, and if it continues in this way, it will inevitably wear out and come to a standstill. Renewal out of itself is impossible, as the collapse of the State-planned Soviet economy demonstrated. The so-called 'free market economy' is theoretically open to external energy inputs, but monetary profit as the sole fuel of an economy is no external energy. The protesters against globalisation (who are themselves globalised and opposed to the neoliberal paradigm) remind us that a change is imperative. While Seattle 1999 has been "widely perceived as an ideological turning point." (Smith 2000, p. 2), most protesters offer no solution to the problems evoked, but they are an indicator of a widespread concern about the excessive liberalisation of trade and the growing global disparities.

Environmental change and potentially ensuing mass migration cannot be solved by technical measures alone but require a change in thinking and attitudes. Their driving forces lie with us, the human society, in particular with the industrialized world. Looking at the World's current state and in particular at a number of political leaders, I am rather pessimistic for the future, although I am basically an optimist. We are reaping the fruits of worldwide colonisation, of the export of the European ways of thinking, of reckless exploitation of the Earth for the benefit of a few.

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